

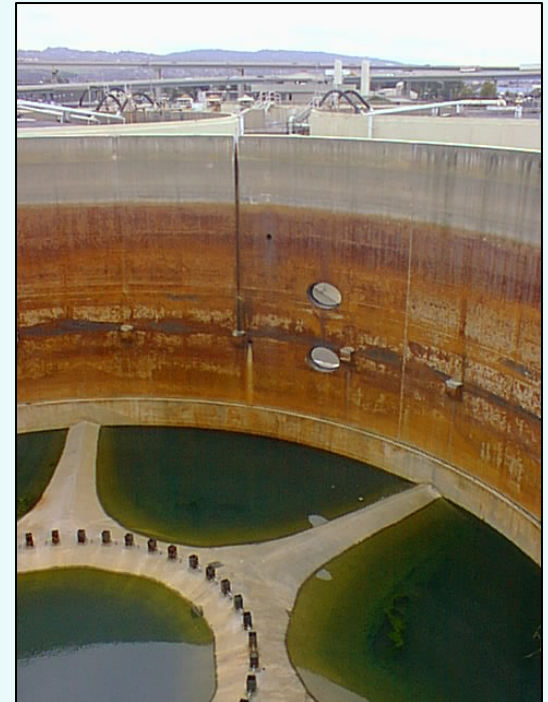


## EBMUD: Food Waste Digester Initiative

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# Presentation Overview

- 💧 EBMUD and Food Waste
- 💧 Food Waste to Energy Program Benefits
- 💧 The Devil in the 20 Ton Truck
- 💧 The Future of Food Waste

# East Bay Municipal Utility District

- Regional water and wastewater public agency serving the east San Francisco Bay
- Drinking water system serves 1.3 million people
- Wastewater system serves 630,000 people



# EBMUD's Wastewater Treatment Plant

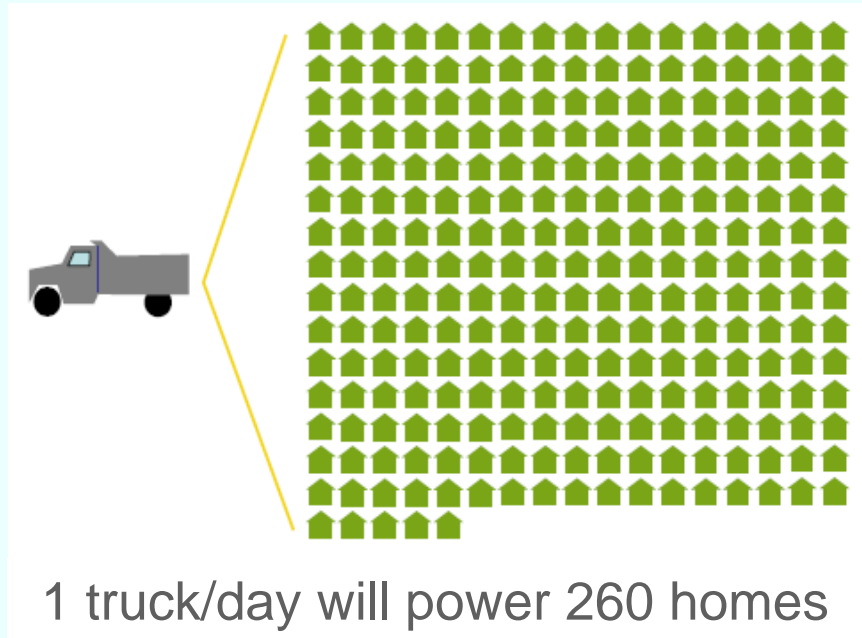
- 💧 Centrally located in Oakland with easy access to freeways.
- 💧 Secondary treatment for up to 170 MGD.
- 💧 Currently, treating 86 MGD.
- 💧 Significant excess capacity.





# Why Food Waste?

- Food Waste creates 3-3.5 times the amount of energy as the same volume of municipal sludge
- Local sustainable feedstock for EBMUD excess digester capacity
- Provides a nice CO<sub>2</sub> & Energy compliment to composting for the wettest organics per LCA:
  - Compost at +1 CO<sub>2</sub>t/t,
  - AD at -19.5CO<sub>2</sub>t/t
  - Compost at -1X GJ/Ton
  - AD at +9X GJ/Ton



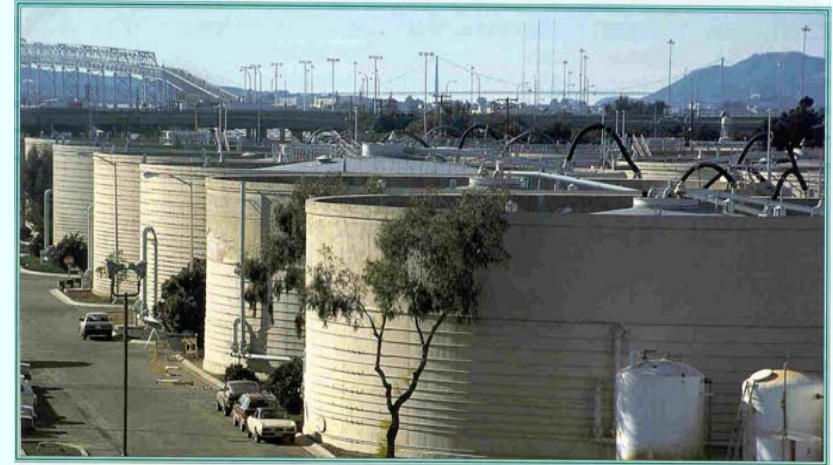
# District Food Waste Pilot

- 💧 Commercial food waste is collected, pre-sorted, and ground by hauler before delivery
- 💧 Pilot designed to receive 1-2 loads/day (20-40 tons)
- 💧 Material is discharged into underground tanks, processed and anaerobically digested
- 💧 Food waste pilot started in 2004; current tip fee is \$32.50/ton which is competitive with other options



# The Food Waste to Energy Process

- Organic-rich food waste (130,000 mg/l COD slurry) is added directly to existing digesters to increase methane production
- Methane gas, a renewable green energy source fuels an existing 6-megawatt on-site power plant (20 tons/day creates power for > 250 homes/day)
- Provides robust waste treatment and efficiently produces energy from organic materials
- Utilizes the community's existing waste treatment infrastructure



# Benefits of EBMUD Food Waste to Energy

- 💧 Uses existing EBMUD facilities
  - Anaerobic digesters
  - Gas recovery & energy generation
- 💧 Ideally situated in an easy access industrial location
- 💧 Supports local goals of:
  - Oil independence
  - Zero Waste
  - Landfill diversion



# **Benefits of EBMUD Food Waste to Energy**

- Reduces volume of waste materials by 90%
- Supports movement toward zero waste, green power, and oil independence
- Provides for methane destruction and creates a net GHG footprint better than compost or landfill

# The Devil in The 20 Ton Truck

- ✓ “Fluid to be processed by the grinder contains organic and inorganic particles, grease, rubber goods, vegetable parts and pits, wood fragments, plastics, and metallic objects”
- ✓ “I really couldn’t believe how bad it was; we were turned away by the odor and couldn’t get closer than 40 feet.”

# Source Separated Organics



# Food Waste Delivery





# Food Waste Delivery





# Inside the Crypt



# Rejected Materials



# 4 Key Elements of Food Waste Program

- ✓ Sorting technology
- ✓ Pretreatment
- Waste stream (sourcing)
- Capital investment



# The Future of Food Waste

- ◆ Target 100-200 ton/day commercial food waste facility with dedicated digestion
- ◆ Generate 1.5 - 3 MW of high-grade product - renewable green energy
- ◆ Provide a regional solution with local benefits
- ◆ Be a key piece of our east bay recycling portfolio

*A Piece of the Solid Waste Puzzle*

# Questions?

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